REMARKS

Claims 31, 33, 36, and 38 have been amended. No claims have been canceled. No new claims have been added. Claims 1-34, 36-39, and 44 are pending.

Applicants' representative is grateful for the indication of allowable subject in claims 33 and 38. Claims 33 and 38 have been rewritten as independent claims incorporating the limitations of their former base and intervening claims. Accordingly, claims 33 and 38 are believed to be allowable and the objection to claims 33 and 38 should be withdrawn.

Claim 31-32, 34, and 36-37 stand rejected under 35 U.S.C. 102(e) as being anticipated by Yakovlev (U.S. Patent No. 6,670,904). This rejection is respectfully traversed.

Claims 31 and 36 recite, *inter alia,* "if said magnitude is not greater than a predetermined threshold, mapping said magnitude to a digital word exclusively with a first transfer function; and if said magnitude is at least equal to said predetermined threshold, mapping said magnitude to the digital word exclusively with a second transfer function" and "wherein said first transfer function is not included in said second transfer function, and said second transfer function is not included in said first transfer function."

Yakovlev is directed to double-ramp analog to digital converter for use with CMOS imagers. Referring to Fig. 3, Yakovlev discloses a two-stage conversion process for an analog input signal Vin.

In the first conversion step, the input signal Vin is compared against a reference Vc. The value of Vc is based on a first transfer function Vcoarse. When the value of Vc crosses the value of the input signal Vin, the first conversion step is

completed. See Fig. 3. The input to the Vcoarse function at this time constitutes the MSB portion of the analog-to-digital conversion.

In the second conversion step, the same input signal Vin is compared against the refernce Vc. As shown in Fig. 3, the value of Vc begins at its value during the final portion of the first conversion step, and then increases according to a second transfer function Vfine. Once the value of VC crosses the value of the input signal Vin, the second conversion step is completed. The input to the Vfine function at this time constitutes the LSB portion of the analog-to-digital conversion.

Significantly, the result of the conversion is a result of two transfer functions. Namely, the MSB portion which is derived from the Vcoarse transfer function and the LSB portion which is derived from the Vfine transfer function.

Yakovlev therefore fails to disclose or suggest "if said magnitude is not greater than a predetermined threshold, mapping said magnitude to a digital word exclusively with a first transfer function; and if said magnitude is at least equal to said predetermined threshold, mapping said magnitude to the digital word exclusively with a second transfer function," as recited in claims 31 and 36. Further, Yakovlev also fails to disclose or suggest "wherein said first transfer function is not included in said second transfer function, and said second transfer function is not included in said first transfer function," as recited in claims 31 and 36.

Claim 44 stands rejected under 35 U.S.C. 102(e) as being anticipated by Tarnoff (U.S. Patent No. 6,829,012). This rejection is respectfully traversed.

Claim 44 recites, inter alia, "an analog to digital (A/D) converter circuit that receives analog signals from the pixel array and converts the analog signals to digital signals with a variable level of quantization, said A/D converter circuit comprising, a

linear A/D converter, for producing intermediate values from said analog signals, and a processing circuit that remaps value said intermediate values produced by said linear A/D converter using a mapping table."

Tarnoff discloses a high speed telecine device. Fig. 5 illustrates that the telecine device includes red, green, and blue sensors which respectively output to their own 12-bit analog to digital converters, which produce 12-bit color pixel values for each of the red, green, and blue channels. Accordingly, Tranoff does not implement any type of variable level of quantization. Tarnoff in fact uses 12-bit quantization. While Tranoff may support remapping converted value using a table at a point subsequent to conversion, Tranoff does not disclose or suggest the above quoted portion of claim 44 because the quantization performed by Tranoff is fixed.

Claims 31, 36 and 44 are therefore believed to be allowable. The depending claims, i.e., claims 32, 34, 37, and 39 are also believed to be allowable for at least the same reasons as the independent claims.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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